

K&C Phase 4

**Identifying industrial go and no-go zones and
monitor deforestation through
PALSAR-2 based deforestation detection, land cover and carbon
stock mapping in Sumatra and Borneo**

**I.e. WWF's dream about how PALSAR-2 data might help
advocating for and implementing zero deforestation in Indonesia**



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with Shaun Quegan, João Carreiras / Sheffield University

Science Team meeting #21 – Phase 4 Kick-off
Kyoto Research Park, Kyoto, Japan, December 5, 2014

ALOS

K&C Initiative
An international science collaboration led by JAXA

Companies committed to Zero Deforestation

FORESTS

New York Declaration on Forests
Action Statements and Action Plans

Provisional copy



CLIMATE SUMMIT 2014
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Companies

- | | | | |
|-----|--------------------------------|-----|---------------------------------|
| 1. | Asia Pulp and Paper | 18. | Miller/Howard Investments, Inc. |
| 2. | Barclays | 19. | McDonalds |
| 3. | Boston Common Asset Management | 20. | Mondelez |
| 4. | Calvert Investment Management | 21. | Nestle |
| 5. | Cargill | 22. | Permian Global |
| 6. | Clamondial | 23. | Procter & Gamble |
| 7. | Danone | 24. | Pick n Pay |
| 8. | Delhaize | 25. | PT Rimba Makmur Utama |
| 9. | Deutsche Bank | 26. | Royal Ahold |
| 10. | Golden Agri-Resources | 27. | SC Johnson |
| 11. | General Mills | 28. | Sobeys |
| 12. | Grupo Bimbo | 29. | Trillium Asset Management LLC |
| 13. | Johnson & Johnson | 30. | Unilever |
| 14. | Kao | 31. | Walmart |
| 15. | Kellogg's | 32. | Westpac |
| 16. | L'Oreal | 33. | Wilmar International |
| 17. | Marl's & Spencer | 34. | Yves Rocher Group |

Engaged by WWF

Project objectives and PALSAR-2

1. Detect deforestation events to monitor for legality of operations and violations of zero deforestation commitment
2. Identify natural vegetation areas with high carbon stock potential (HCS) to map industrial no-go zone

* activities beyond those initially proposed...

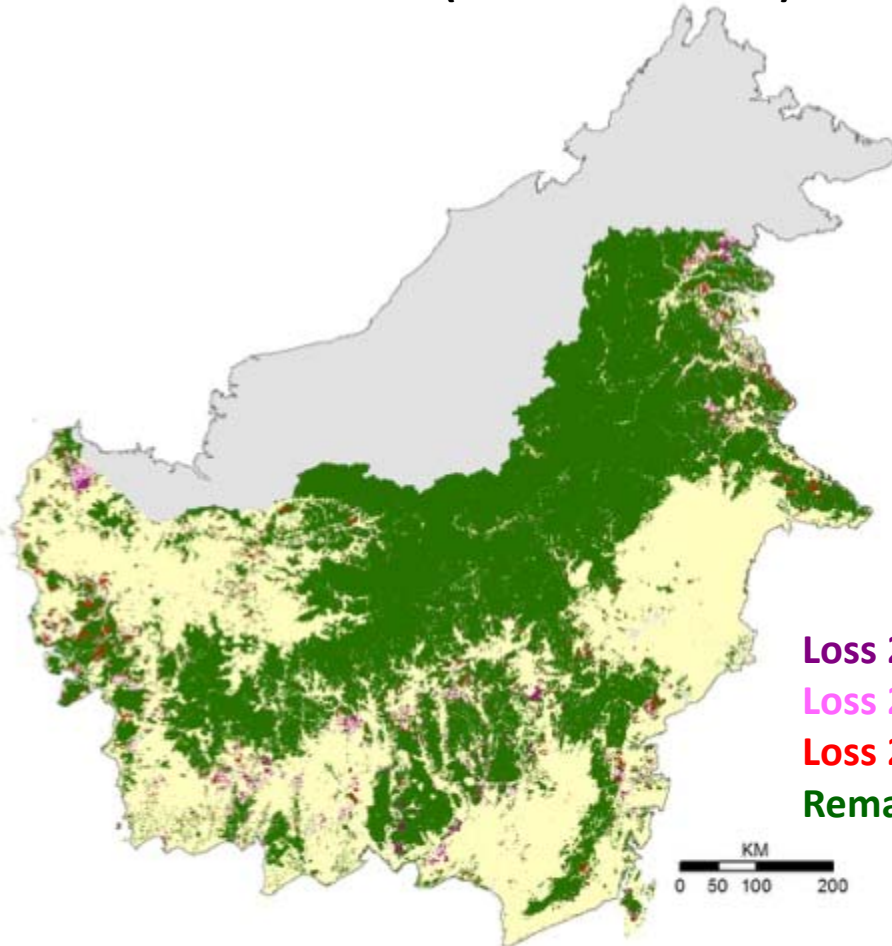
3. Detect inundation of peatlands to determine sites' feasibility for plantation development and operation

Borneo Natural Forest Cover

(Margono et al. 2014)

2000: 30.0 million ha (56% Kalimantan)

2012: 27.6 million ha (52% Kalimantan)

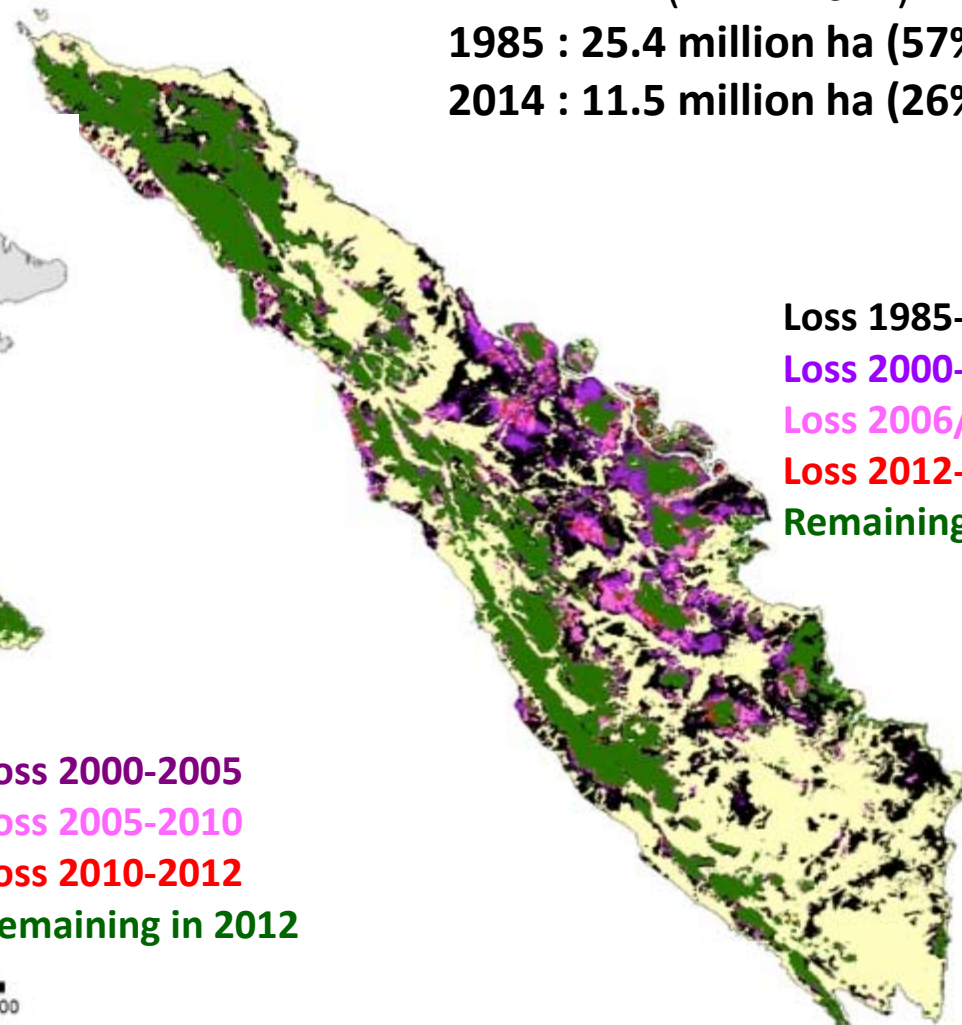


Sumatra Natural Forest Cover

(WWF 2014)

1985 : 25.4 million ha (57% island)

2014 : 11.5 million ha (26% island)

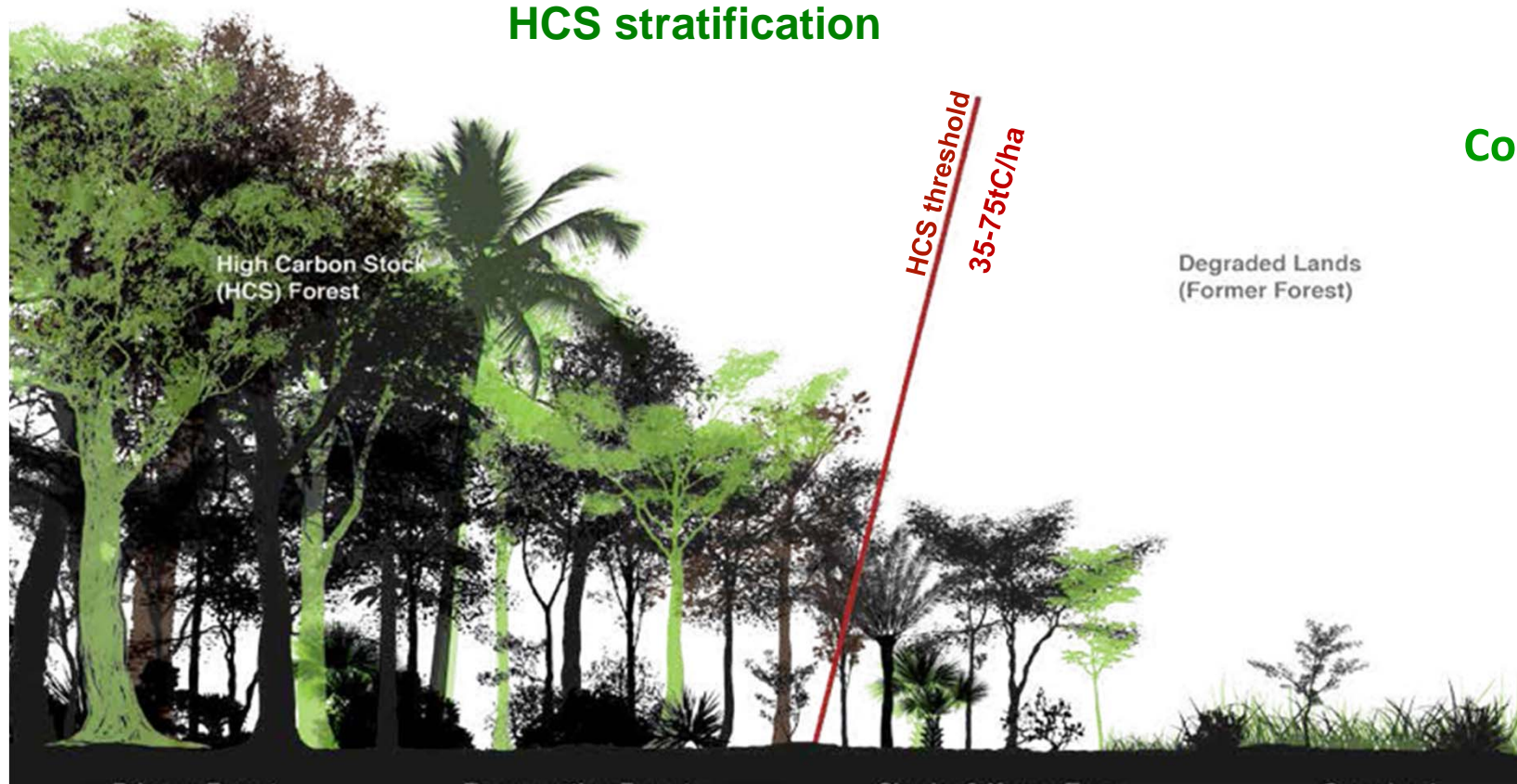








HCS stratification



Committed to HCS

APRIL

APP

Asian Agri

Cargill

GAR

IOI

KLK

Musim Mas

New Britain

Sime Darby

Wilmar

POTENTIAL HCS AREAS				MAY BE DEVELOPED	
High-Density Forest (HDF/HK3)	Medium Density Forest (MDF/HK2)	Low Density Forest (LDF/HK1)	Young Regenerating Forest (YRF)	Scrub (S)	Cleared/Open Land (OL)
Remnant forest or advanced secondary forest close to primary condition	Remnant forest but more disturbed than HK3	Appears to be remnant forest but highly disturbed and recovering [may contain plantation/ mixed garden]	Mostly young regrowth forest, but with occasional patches of older forest within the stratum	Recently cleared areas, some woody regrowth and grass-like ground cover	Very recently cleared land with mostly grass or crops, few woody plants

Kraft

Nestle

P&G

Unilever

Etc.

Project area characteristics

The Indonesian islands of Borneo and Sumatra have

1. Some of the world's largest and deepest peat soils (asset)
2. Some of the world's most diverse forests (asset)
3. The world's highest deforestation rate (threat)
4. The largest production of the world's most powerful oil: palm (driver)
5. One of the world's top productions of pulp for paper (driver)
6. One of the world's most corrupt concession licensing system (facilitator)
7. Covered by haze from fires during every dry season (PALSAR-2 need)
8. Covered by monsoonal clouds during every wet season (PALSAR-2 need)

Overall project's contribution to K&C's thematic drivers

i.e. WWF's objectives towards Cs and how PALSAR-2 can help

Climate Change

GHG emissions from deforestation and peat development are reduced after information compiled with the help of PALSAR-2 data has been presented to governments and corporations

International Conventions: UNFCCC

REDD+ is being implemented in new ecosystem set-asides designated after drivers of deforestation have been engaged with PALSAR-2 assisted data sets

Environmental Conservation

Biodiversity and environmental services of forests and peat lands are protected and/or restored and monitored by PALSAR-2 assisted data sets

Deliverables

1. PALSAR-2 data generated deforestation alerts publicly available
2. PALSAR-2 data generated annual forest/land cover maps publicly available
3. PALSAR-2 data mapped HCS areas integrated in corporate no-go zone maps
4. PALSAR-2 data mapped inundation areas integrated in corporate no-go zone maps



Eyes on the Forest



About this Database

[hide all layers]

Protected Ranges

Deforestation Drivers

☒ Riau land cover change

[play]

1990 1995 2000 2005 2007 2012

Pulp & paper in Riau

Oil palm in Tesso Nilo National Park **NEW!**

Oil palm in protected tiger forests **NEW!**

Wildlife Ranges

☐ Sumatran rhinoceros

☐ 1980s ☐ 2007

☐ Sumatran orangutan

☐ 1990s ☐ 2011

☐ Sumatran elephant

☐ 1985 ☐ 2007

☐ Sumatran tiger

☐ 1996 ☐ 2010

☐ Biodiversity Photos

Natural Forest Cover

Eco-Floristic Diversity

Natural Carbon Stores

☐ Peat soils

☐ Carbon stock estimates 2009

☐ Simple ☐ Detailed

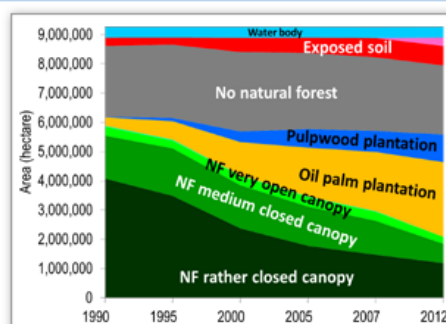
☐ Carbon stock change

[play]

1985 2000 2009 2012

Recommendations

Fires, Smoke and Haze

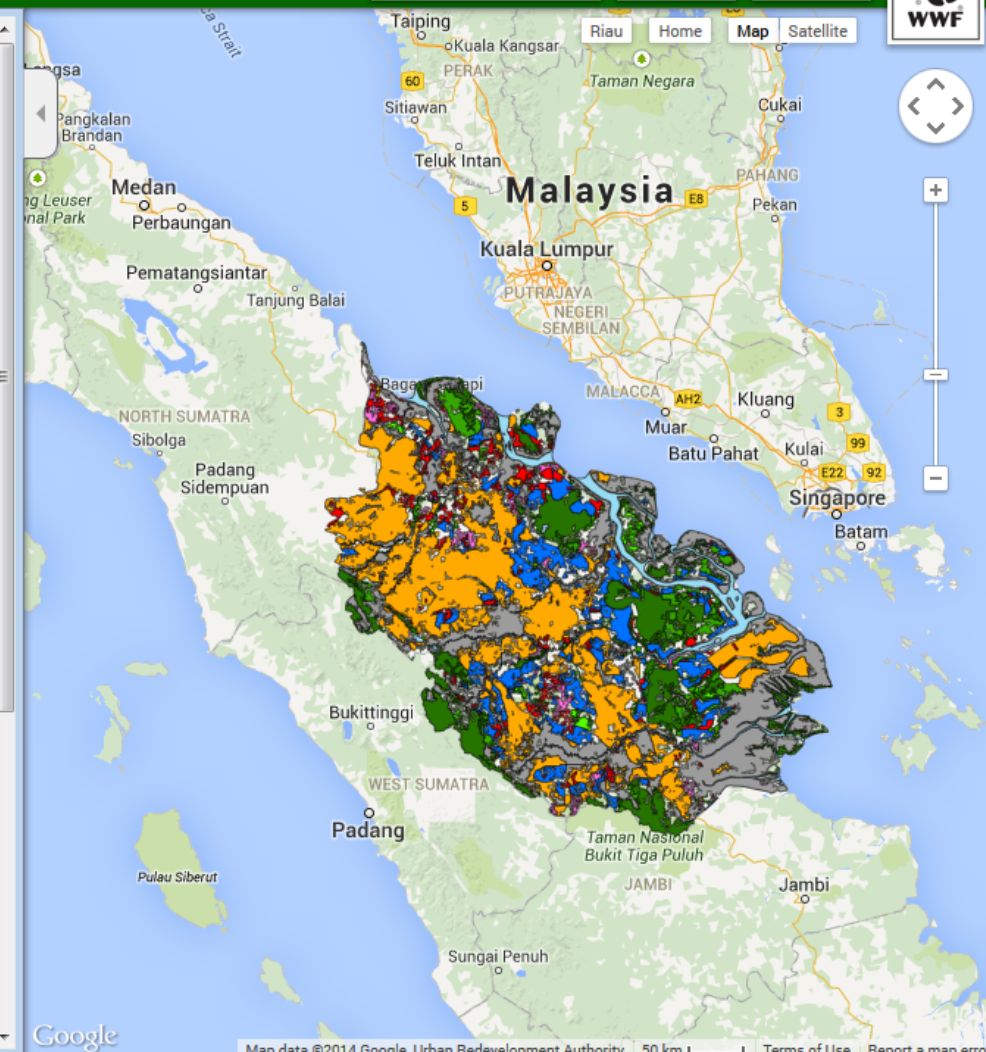


Riau land cover change

Riau has been the top deforestation province in Indonesia.

The province lost almost 3 million hectare of its natural forests between 1990 and 2007 and an additional 880,000 hectares until 2012. [Key deforestation drivers](#) were the pulp & paper industry, dominated by APP and APRIL and their suppliers, and the palm oil sector with many corporate and other players.

Satellite images show that by 2012, 21% of the areas deforested since 2007 had become pulpwood and 11% commercial oil palm plantations. 35% showed exposed soil and were often located inside pulpwood concessions, indicating either fresh deforestation or harvesting. 20% showed exposed soils with sometimes light vegetation cover not following regular patterns. Ground surveys frequently found young oil palms planted among some re-growth in such areas. Examples are Tesso Nilo National Park and the 'Protection Forest' zones connecting Bukit Tigapuluh National Park and Rimbang Baling Wildlife Sanctuary.



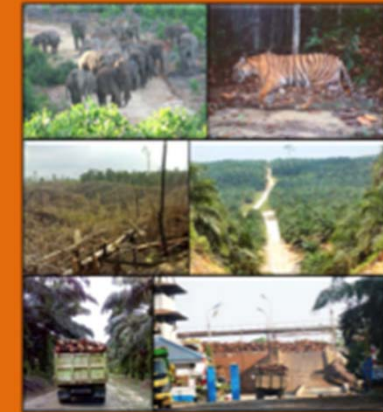
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Palming Off a National Park

Tracking Illegal Oil Palm Fruit in Riau, Sumatra



Riau, Sumatra, Indonesia 2013

Eyes on the Forest Sumatra - Illegal Palm Oil out of Tesso Nilo National Park

A WWF investigation revealed the flow of illegally grown oil palm fruit from inside the park to crude palm oil mills and refineries operated by the world's largest palm oil company Wilmar and another lead producers, Asian Agri.

Unfortunately, the illegal oil palm plantations are very attractive food for the elephants whose native forests they replaced. Often their angry operators retaliate and poison the elephants. The skeletons of a group of seven young elephants who likely died in one such poisoning attack were found in February 2014. Thirty-three elephants have died in and around the park in the last 2 years alone. In Sumatra, palm oil has become elephant killer Number One.

Check EoF's interactive online map for details.

ビューをリセット

☒ National Park boundary

情報のある地域を表示

☒ Natural Forest

情報のある地域を表示

☐ 1985

☐ 1990

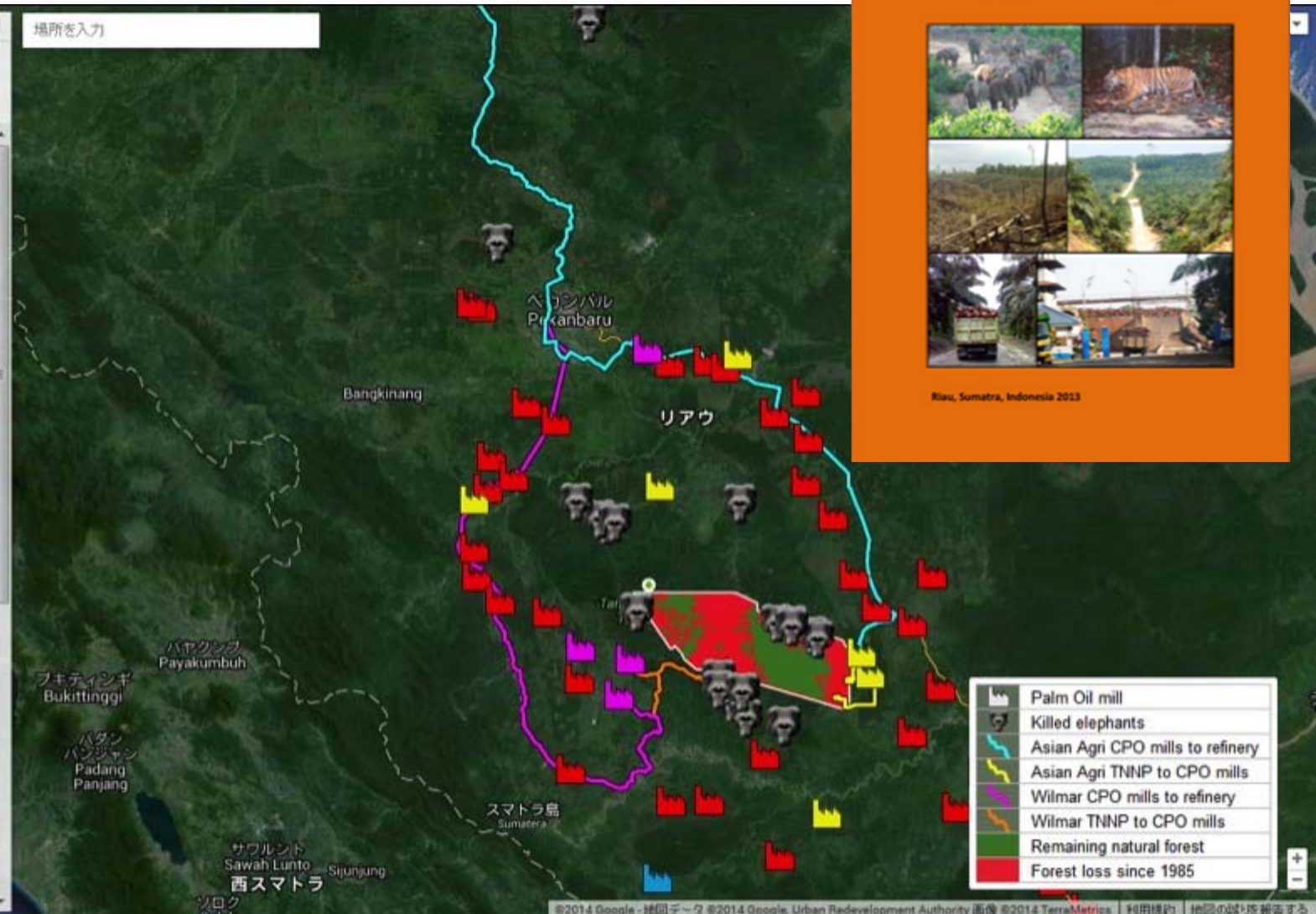
☐ 2000

☐ 2005

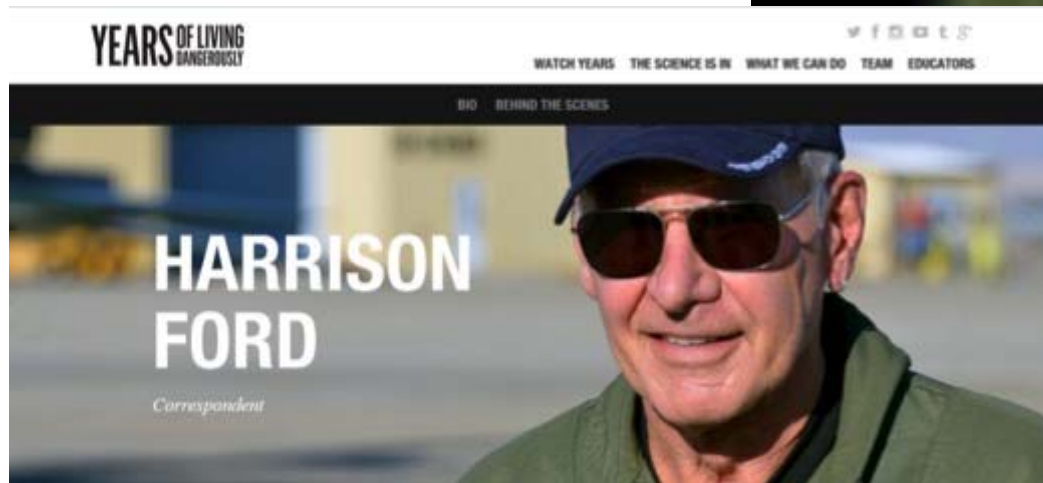
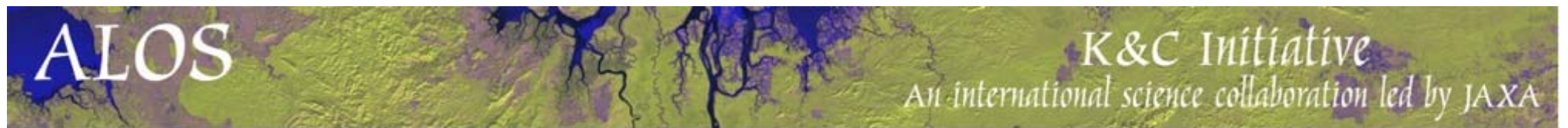
☐ 2007

☐ 2009

場所を入力



https://mapsengine.google.com/04498453840810014575-04453257671027023694-4/widget/in_iframe



<http://yearsoflivingdangerously.com/>



http://www.youtube.com/watch?feature=player_detailpage&v=oZnzZxumGcw



By: Associated Press - Tuesday, September 10, 2013

JAKARTA, Indonesia—Hollywood actor **Harrison Ford** interviewed Indonesia's president on Tuesday about environmental degradation for a **TV** documentary on climate change.

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Mr. Ford, known for his starring roles in the "Indiana Jones" and "Star Wars" films, is also an environmental activist and a director of Conservation International.

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By CBS NEWS STAFF / CBS/AP / September 10, 2013, 2:10 PM

Harrison Ford clashes with Indonesian government on climate



Warief Djalanto Basorie, Jakarta | Opinion | Thu, November 07 2013, 11:24 AM

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Occupy, control and operate. This amounts to Nilo. The encroachment relates to illegal palm fruit grown inside the 167,000-hectare for province, central Sumatra.

The complex consists of Tesso Nilo National Park and adjacent logging concessions.

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ASIA LIFE

Harrison Ford Gives Indonesian Minister Shellacking on Climate Change

The actor rattled Indonesia's forestry minister after grilling him on logging.

By Jonathan DeHart
September 11, 2013



In his roles as Han Solo and Indiana Jones, Harrison Ford has taken on many foes. Now he's battling a new

1 Share
1 Comment

Actor is accused of harassing state institutions after interviewing forestry minister about illegal logging and climate change

Kate Hodal in Bangkok
theguardian.com, Wednesday 11 September 2013 07.27 EDT



son Ford, right, with the Indonesian president, Susilo Bambang Yudhoyono, in
ta. Photograph: Abror Rizki/AFP/Getty Images

Hollywood actor [Harrison Ford](#) has been accused of "harassing

Project data sharing

1. Geo-referenced observations by field teams
2. Geo-referenced footage by specially deployed drones
3. Forest biomass measurements
4. Possibly (no guarantee yet!) LiDAR data
5. Possibly (no guarantee yet!) HCS maps
6. Possibly shipping manifesto from port authorities for bulk carrier routes or other info on shipments

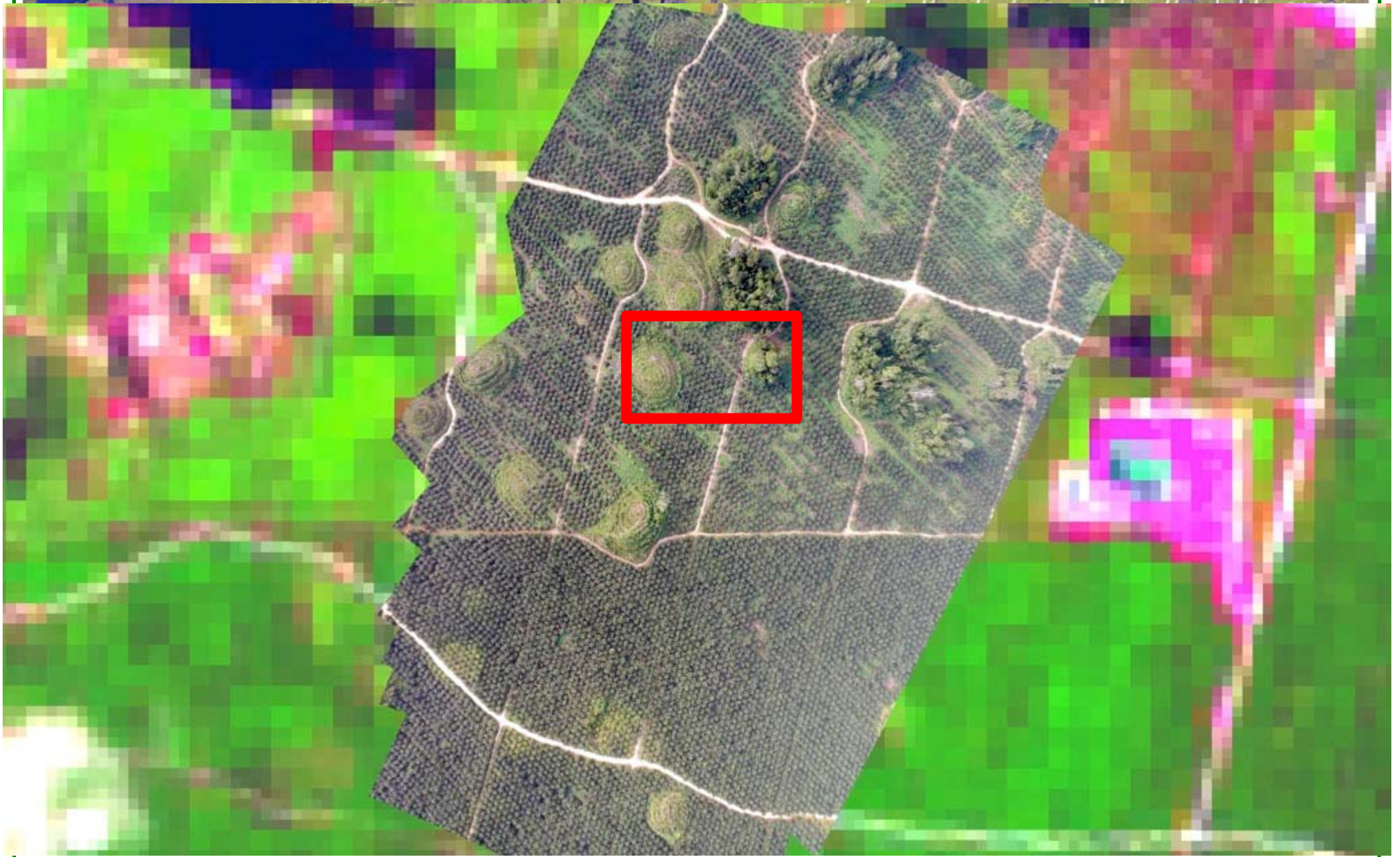
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